May 22, 1934. B. KRZEMINSKI 1,959,831

GEOGRAPHICAL CLOCK

Filed Nov. 9, 1931 3 Sheets-Sheet 1

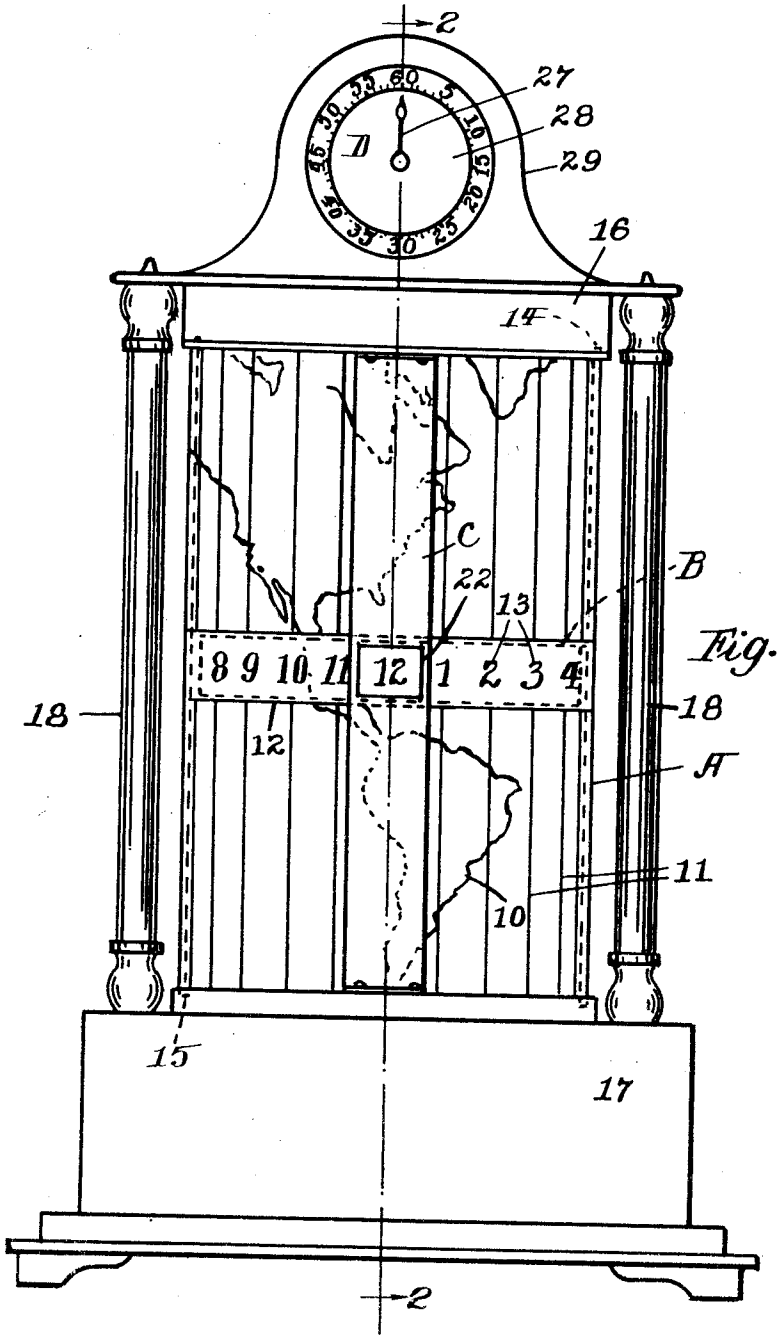


Fig. 1.

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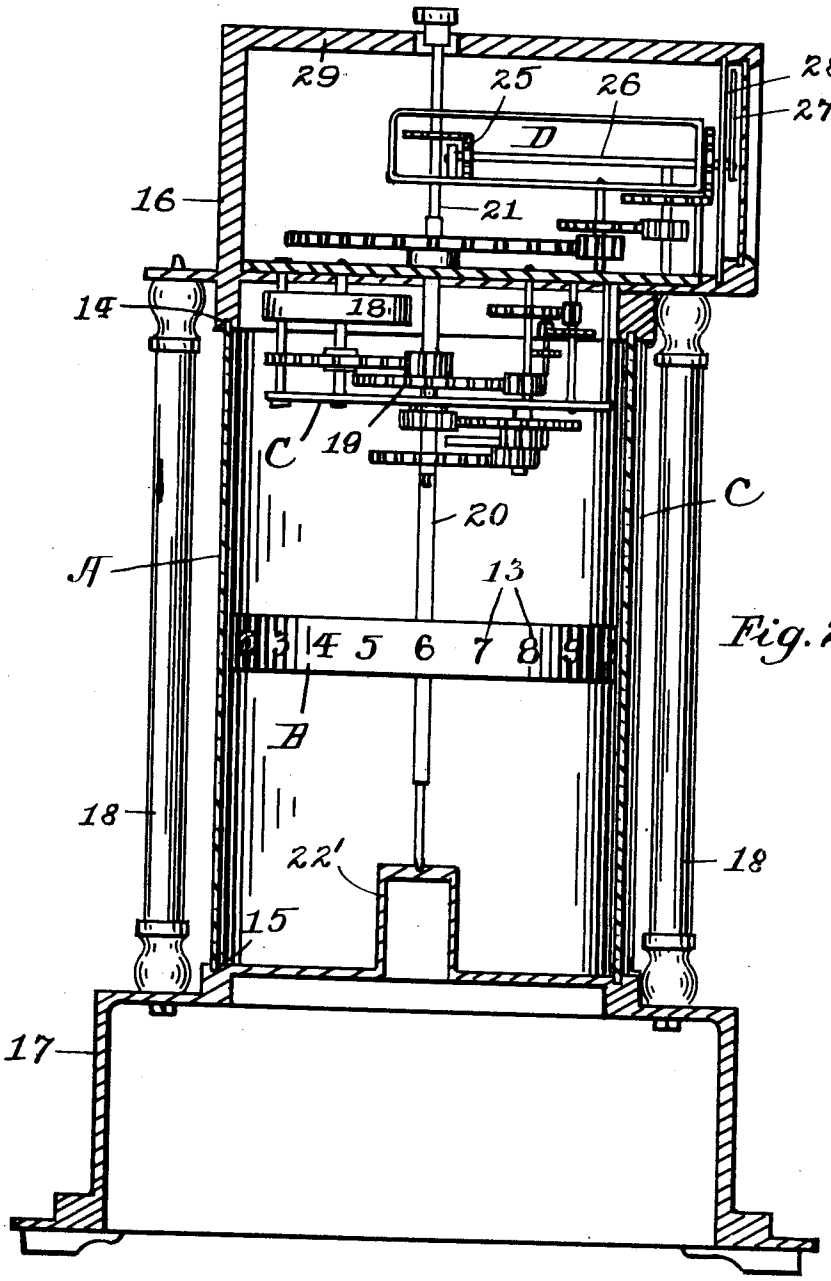


Fig. 2.

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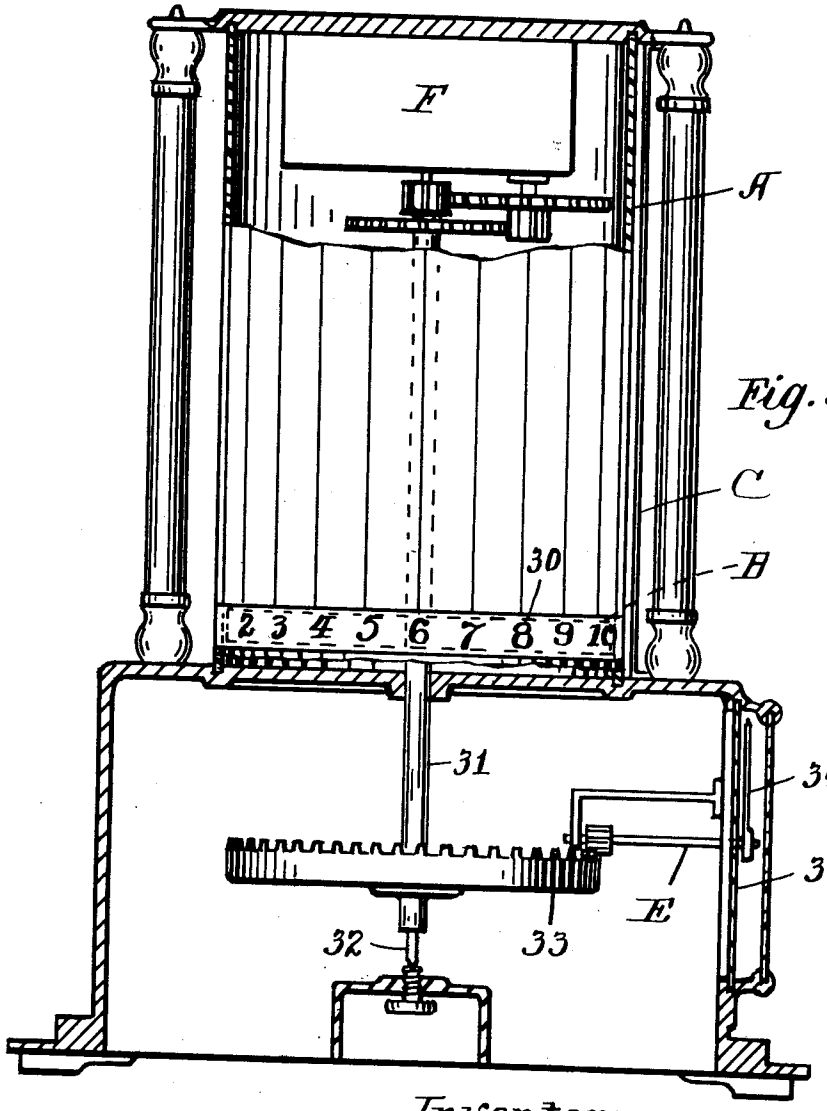


Fig. 3.

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Patented May 22, 1934

1,959,831

UNITED STATES PATENT OFFICE

1,959,831

GEOGRAPHICAL CLOCK

Bronislaw Krzeminski, Los Angeles, Calif.

Application November 9, 1931, Serial No. 573,872

1 Claim. (Cl. 58—44)

My invention relates to a geographical clock by which the time of day or night in hours and minutes can be told in any longitude or meridian throughout the principal parts of the world. The primary object of the invention is the production of a clock of the type stated which is simple in construction, attractive in appearance, inexpensive and efficient in operation. Among further objects is to provide a clock of the type stated by which the hours and minutes are displayed so that they can be easily read when applied to any locality in the principal parts of the world.

In the accompanying drawings, forming part of this specification, Fig. 1 is a front elevation of my invention; Fig. 2 is a vertical section of my invention taken on the line 2—2 of Fig. 1, and Fig. 3 is a section taken in substantially the same plane as in Fig. 2, of an alternative construction.

In the drawings, A is a vertical transparent terrestrial cylinder made of glass or other suitable material having its cylindrical surface mapped at 10 in projection to indicate thereon the principal portions of the earth's surface divided by the usual standard meridian lines 11 into twenty-four hour longitudinal spaces. A transparent band 12 through the map and encircling the terrestrial cylinder substantially midway between its upper and lower ends provides a space through which the hour digits 13, on the periphery of the revoluble hour disc B, within the cylinder (to be hereinafter described) are visible. The terrestrial cylinder is revolubly seated in circular bearing grooves 14 and 15 which are formed in upper and lower horizontal frame supports 16 and 17, the latter being tied together by vertical columns 18, the cylinder being free to be turned about its vertical axis by hand in the frame work, thus provided so that any vertical longitudinal space on the map displayed on the surface of the cylinder can be positioned foremost. Suitably mounted within the terrestrial cylinder A and the frame work provided by the upper and lower frame supports 16 and 17 is a suitable clock work mechanism C having a driving spring 18, train of gearing 19, hour take off shaft 20 extending downwardly, and minute take off shaft 21 extending upwardly. The hour take off shaft 20 is arranged co-axial with the axis of the cylinder A and is stepped in the bearing support 22' on the lower frame support 17. This shaft 20 carries the hour disc B, revoluble in a horizontal plane with its digits 13 visible through the transparent band 12 on the cylinder A. The digits 13 are in two evenly spaced groups from 1 to 12 each, the two groups encircling the cylinder in series and being differentiated by color or otherwise to indicate day or night time.

The disc is revolved once in every twenty-four hours while the cylinder remains stationary and its digits register successively with a sight band or scroll 22 on a transparent stationary sight piece C, the latter extending vertically along the side of the cylinder and being secured to the upper and lower frame supports 16 and 17. The sight piece can be made out of celluloid or any other suitable transparent, semi-transparent or opaque material. If made out of opaque material the band or scroll 22 may enclose a transparent opening through which the digits 13 on the hour disc B are visible. However it is preferable to make the sight piece entirely out of transparent material so that the position of places and localities indicated by the map on the terrestrial cylinder lying under the sight piece are visible at all times. Thus the hours of day or night appearing successively through the sight opening 22 are indicated.

In starting the clock the geographical location represented by a longitudinal space on the cylinder is first moved to completely register with the sight piece C by turning the terrestrial cylinder A by hand in its bearing seats. The clock work mechanism is next set so that the correct hour digit for the correct time (day or night) registers with the sight opening 22 and the clock started. The minute hand operating mechanism D to be described is also set correctly.

The minute hand operating mechanism, consists of ordinary minute gearing 25 connected with the clock work minute take off shaft 21 and operating a transverse shaft 26, the latter carrying a minute hand 27 revolubly disposed over a minute indicating dial 28. A suitable housing 29 carried by the upper frame support 16 acts as a support for the minute hand mechanism and dial and the minute hand and dial are disposed facing forwardly so that the hour and minute during day or night indicated by the sight piece C and disc B can be traced north or south along any longitudinal space on the cylindrical map which registers with the sight piece. Also by comparing the digit appearing through the transparent band in cylinder A with the corresponding longitude, the time of day or night is also indicated in any other portion of the world simultaneously.

The adjustment of the cylinder revolubly, enables the clock to be set so that the time of day or night can be told not only from the sight piece at the place where the clock is stationed but instantly in any part of the world shown by the

map by comparing the digits on the hour disc respectively with the corresponding longitude shown on the terrestrial cylinder. Obviously, the minute indicator functions for any longitude on the cylinder without change in position of the cylinder.

In the alternative construction shown in Fig. 3, the hour indicating disc B is revolubly situated near the lower end of the cylinder and co-operates through the transparent band 30 with the sight element C in the same manner as described above. The hour shaft 31 revolves about an arbor 32 and carries the hour disc B in the terrestrial cylinder and a crown gear 33 from which the minute indicating mechanism E is driven, said minute mechanism having a minute indicating hand 34 and dial 35 in the lower portion of the structure instead of above as shown in the preferred construction described above. The clockwork mechanism represented by F for driving the main shaft 31 may be any form of clockwork actuating device, electrical or mechanical.

In accordance with the patent statutes, I have described the principles of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the construction shown is only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claim.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

A geographical clock, comprising, in combination, a vertically disposed transparent cylindrical shell mapped in projection on its surface to indicate thereon the principal portions of the earth's surface and divided by standard meridian lines into twenty four hour longitudinal spaces, a frame having upper and lower end members in which the end edges of said cylinder are journalled whereby the cylinder may be revolved by hand about its axis and any vertical space on the map displayed by the cylinder can be positioned foremost, clock work mechanism having an hour shaft co-axially disposed in said cylinder, an hour disc revolubly supported by said shaft in said cylinder having hour digits visible through said cylinder and adapted to register with said longitudinal spaces indicated on the surface of said cylinder to indicate the hour of day or night north or south in the corresponding longitude, a sight on said frame with which the digits on said hour disc are adapted to coincide successively as the disc revolves to indicate the hour in a predetermined locality, and minute mechanism actuated by said clock work mechanism having a minute indicating dial and cooperating minute hand adapted to display the minutes during any hour in any longitude indicated by the hour disc on the surface of the cylinder.

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